



## NASA Weekly Update

Week of August 28 – September 5, 2006

### NASA Ready to Launch Space Shuttle Atlantis' STS-115 Mission to the International Space Station:

On Tuesday, at Launch Pad 39B, the rotating service structure will move away from the shuttle and Atlantis



Space Shuttle Atlantis stands ready for liftoff on Sept. 6

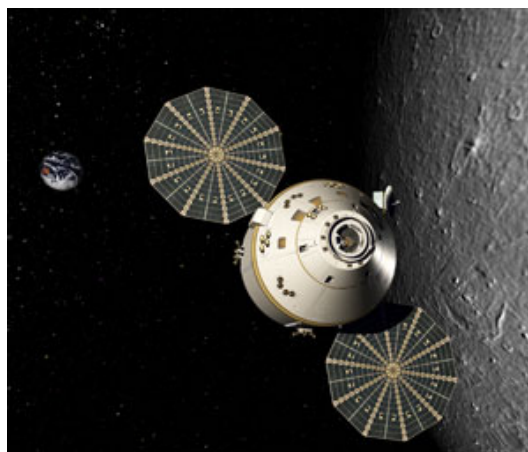
will stand ready for liftoff, in preparation for the Wednesday, September 6, 2006 launch of Space Shuttle Atlantis. Launch is targeted for 12:29 p.m., EDT, on Wednesday. For information about the STS-115 crew and mission, visit:

<http://www.nasa.gov/shuttle>.

### NASA Selects Orion Crew Exploration Vehicle

**Prime Contractor:** On Thursday, August 31, 2006, NASA selected Lockheed Martin Corp., based in Bethesda, Md., as the prime contractor to design, develop, and build Orion, America's spacecraft for a new generation of explorers. Orion will be capable of transporting four crewmembers for lunar missions and later supporting crew transfers for Mars missions. The first Orion launch with humans onboard is planned for no later than 2014, and for a human moon landing no later than 2020. For information about Orion, visit:

<http://www.nasa.gov/orion>.



Artist's rendition of Orion, the next generation space ship that will take humans back to the Moon in lunar orbit.

### NASA Invites Congressional Staffers to Meet STS-121 Astronauts:

Congressional Staffers are invited to attend a special meeting held at NASA Headquarters on Thursday, September 7, 2006 in the James Webb Auditorium. The event will begin with a breakfast in the Lobby, followed by a briefing from NASA Senior Staff and the STS-121 crew, culminating with Q&A with the crew. To RSVP, contact Josh Buck: [jbuck@nasa.gov](mailto:jbuck@nasa.gov).



STS-121 crew, after attending the 12th X Games will appear at NASA HQ on Thursday, September 7, 2006

### 9-1: NASA'S Exploration Systems Progress Report:

NASA recently completed a series of tests that will aid in the design and development of a parachute recovery system for the rocket and capsule that will return astronauts to the moon and later support missions to Mars. The system will be used for the first stage booster of the Ares I crew launch vehicle and for Orion, the new crew exploration vehicle. For information about NASA's Constellation Program, visit: <http://www.nasa.gov/constellation>.

### 9-1: NASA Tests Technology Under Harsh Desert

**Conditions:** Arizona's high desert is a long way from the moon and Mars, but its temperature extremes, gusty winds and dust make NASA's robots, rovers and latest space gear feel right at home. The state's famed Meteor Crater and Cinder Lake area represents a surrogate planet surface for NASA's Desert Research and Technology Studies team of scientists and engineers who test futuristic equipment. This is the ninth year for the team to take on the high desert and volcanic ash beds found near Flagstaff, Ariz.

### 9-1: NASA Continues Space Exploration Research

**With Undersea Lab:** NASA's third mission this year to an undersea laboratory off the Florida coast begins when four astronauts splash down Sept. 16. During the NASA Extreme Environment Mission Operations (NEEMO) 11, astronauts will imitate moonwalks, testing concepts for mobility using various spacesuit configurations and weights to simulate lunar gravity. Techniques for communication, navigation, geological sample retrieval, construction and using remote-controlled robots on the moon's surface also will be tested. For more information about NEEMO, including mission imagery, crew journals, and links to webcams and the Digital Learning Network, visit: <http://www.nasa.gov/neemo>.

### 8-31: NASA Study Solves Ocean Plant Mystery: A

NASA-sponsored study shows that by using a new technique, scientists can determine what limits the growth of ocean algae, or phytoplankton, and how this affects Earth's climate. For images related to this research, visit:

[http://www.nasa.gov/centers/goddard/news/topstory/2006/mystery\\_plants.html](http://www.nasa.gov/centers/goddard/news/topstory/2006/mystery_plants.html).

### 8-30: NASA, NOAA Data Indicate Ozone Layer is

**Recovering:** A new study using NASA and National Oceanic and Atmospheric Administration (NOAA) data finds consistent evidence that Earth's ozone layer is on the mend. The stratosphere is Earth's second lowest atmospheric layer. It contains approximately 90 percent of all atmospheric ozone. The researchers concluded the Earth's protective ozone layer outside of the polar regions stopped thinning around 1997. Ozone in these areas declined steadily from 1979 to 1997.

## Weekly Status Reports



With the launch of Space Shuttle Atlantis delayed, activities for the International Space Station crew were adjusted.

The crew packed items that will be returned to Earth and reviewed plans for the shuttle flight's three spacewalks. They also conducted normal station maintenance, daily exercise sessions and scientific experiments.

Williams spent parts of three days this week working with a cosmic radiation study called the Anomalous Long-Term Effects in Astronauts' Central Nervous Systems. The experiment tracks cosmic radiation while monitoring brain activity and recording the subject's visual perceptions. Williams spent one orbit, about 90 minutes, floating prone with sensor blocks over and beside his head. The experiment's results may help develop ways to protect future space fliers from the effects of cosmic radiation.

Later in the week, Williams worked with the Capillary Flow Effects experiment, studying the dynamics of capillary flow in microgravity. Insight gained from the experiment may help in the developments of fluid transport systems for future spacecraft.

Other work included testing a seal the astronauts replaced on an experiment facility called the Microgravity Science Glovebox. The glovebox, in the U.S. laboratory Destiny, provides a contained environment for experiments involving fluid, flame or fumes.



## Shuttle

Note: NASA's Kennedy Space Center issues Space Shuttle Processing Status Reports periodically and is the source for information regarding processing activities associated with the vehicles and payloads. If you are a member of the media and would like further information, visit:

<http://www.nasa.gov/centers/kennedy/news/index.html>

### Atlantis

Mission: STS-115 - 19th International Space Station Flight (12A) -

P3/P4 Truss Segment and Solar Arrays

Vehicle: Atlantis (OV-104)

Location: Launch Pad 39B

Launch Date: Sept. 6, 2006, 12:29 p.m. EDT

Crew: Jett, Ferguson, Tanner, Burbank, MacLean and Stefanyshyn-Piper Inclination/Orbit Altitude: 51.6 degrees/122 nautical miles

At Launch Pad 39B, preparations for Wednesday's launch are under way. The launch countdown began on Sunday at 8 a.m. The pressurization of the orbital maneuvering system, the reaction control system and the main propulsion system is complete. The aft confidence test is complete. This test involves power-up and testing of all aft systems, such as the main propulsion system circuits. The power reactant storage and distribution system fuel loading is complete.

Weather officials are predicting favorable conditions for Wednesday's launch attempt, with a 20 percent chance of weather prohibiting the launch. Drier conditions are expected to arrive on Wednesday, and the early launch time should avoid the afternoon thunderstorms. The primary concerns for launch are cumulus clouds within 10 nautical miles of the launch pad, and isolated showers within 20 nautical miles of the Shuttle Landing Facility.

#### Discovery

Mission: STS-116 - 20th International Space Station Flight (12A.1) - P5 Truss Segment  
Vehicle: Discovery (OV-103)  
Location: Orbiter Processing Facility Bay 3 Launch Date: No earlier than Dec. 14, 2006 Launch Pad: 39B  
Crew: Polansky, Oefelein, Curbeam, Higginbotham, Patrick, Fuglesang and Williams Inclination/Orbit Altitude: 51.6 degrees/122 nautical miles

Processing of Discovery for its next mission, STS-116, continues in Orbiter Processing Facility bay 3. Work was interrupted this week by the arrival of Tropical Storm Ernesto, but the vehicle is now configured for normal operations, and system testing on the main propulsion system continues. Preparations for removal and replacement of auxiliary power unit No. 3 are in work. The brake anti-skid and nose wheel steering testing is in work. Final closeouts are under way to complete installation of the orbiter's drag chute. This weekend the orbiter's thermal protection system will be waterproofed.

#### Endeavour

Powered-up system testing continues on Endeavour in Orbiter Processing Facility bay 2 following an extensive modification period. Work was interrupted this week by the arrival of Tropical Storm

Ernesto, but the orbiter is now configured for normal work and technicians are performing electrical tests on the remote manipulator system (shuttle arm) pedestal wire harnesses. Rigging of the orbiter boom sensor system pedestals is under way. Workers continue to remove and replace gap fillers in the high priority areas of the orbiter's underside.



### Expendable Launch Vehicle (ELV)

Mission: STEREO (Solar Terrestrial Relations Observatory)  
Launch Pad: 17-B, Cape Canaveral Air Force Station  
Launch Vehicle: Boeing Delta II  
Launch Date: No earlier than Oct. 18, 2006  
Launch Time: TBD

A decision was made to remove the STEREO second stage from the launch vehicle and perform inspection from inside the propellant tank to verify it is structurally sound for flight.

The launch of STEREO is now targeted for no earlier than Oct. 18. An electrical checkout of the vehicle is under way due to lightning strikes within a one-third mile radius of Complex 17 during the passing of Tropical Storm Ernesto.

The STEREO observatories remain at the Astrotech Space Operations Facility. Today technicians removed the transportation canister from around the payload to begin the process of reconditioning the batteries and preparing for the storage period (currently about 30 days). The twin spacecraft will remain in storage until the necessary course of action for the Delta II can be more clearly defined. There was no effect on the STEREO spacecraft from Tropical Storm Ernesto.



### Upcoming Events

- **Sept. 6:** Space Shuttle Atlantis STS-115 mission
- **Sept. 6:** Breakfast with NASA and the crew of STS-121 – See page 4 for details
- **Sept 13, 6:30 p.m.:** ICE ON EARTH: New Windows on our Frozen World at the National Air and Space Museum
- **Sept. 14:** Launch of Expedition XIV crew on Soyuz TMA-9
- **NET Sept. 18:** STEREO launch

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Please print and Fax to (202) 358-4340  
or e-mail Lisa.Gibson@nasa.gov



Due to limited seating capacity please RSVP to:  
Josh Buck at [jbuck@nasa.gov](mailto:jbuck@nasa.gov) or (202) 358-1130